

**ASSEMBLY AND SCREENING OF HIGHLY COMPLEX  
AND FULLY HUMAN ANTIBODY REPERTOIRE IN YEAST**

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**ABSTRACT**

10 Compositions, methods, and kits are provided for efficiently generating  
and screening a library of highly diverse protein complexes for their ability to  
bind to other proteins or oligonucleotide sequences. In one aspect of the  
invention, a library of expression vectors is provided for expressing the library  
of protein complexes. The library comprises a first nucleotide sequence  
15 encoding a first polypeptide subunit; and a second nucleotide sequence  
encoding a second polypeptide subunit. The first and second nucleotide  
sequences each independently varies within the library of expression vectors.  
In addition, the first and second polypeptide subunit are expressed as  
separate proteins which self-assemble to form a protein complex, such as a  
double-chain antibody fragment (dcFv or Fab) and a fully assembled antibody,  
20 in cells into which the library of expression vectors are introduced. The library  
of expression vectors can be efficiently generated in yeast cells through  
homologous recombination; and the encoded proteins complexes with high  
binding affinity to their target molecule can be selected by high throughput  
screening in vivo or in vitro.

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